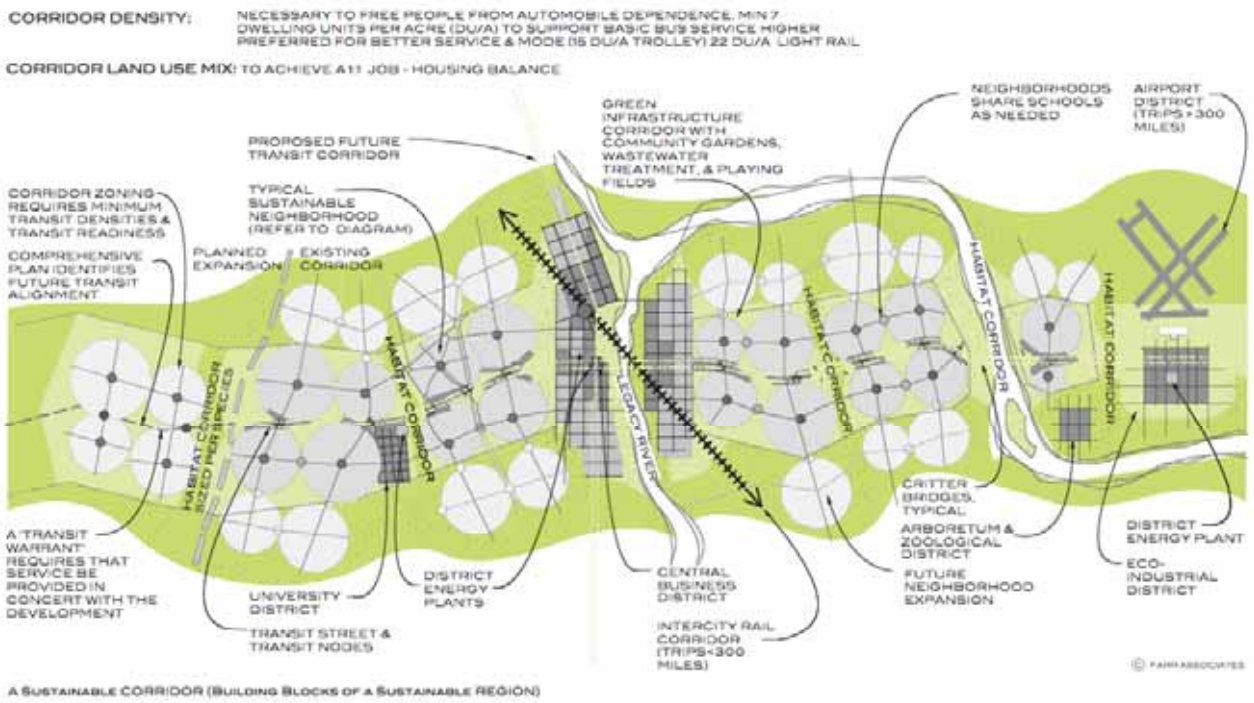
CNU Austin Special Salon, April 2008
Urban Structuring to improve TOD and Retail

An Introduction to this Session by Doug Farr

A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR)



A SUSTAINABLE CORRIDOR (BUILDING BLOCKS OF A SUSTAINABLE REGION)

"It is hard not to think of this book as a first draft, destined to be written over and over, as our collective knowledge, achievements and sense of urgency increase." p. 10, *Sustainable Urbanism*

Objective of this session

For CNU to agree on a set of sustainable town and neighborhood structure prototypes*, which optimize specific public transport modes, and the viability for the *full and appropriate* range of urban centers

*A 'prototype' is the distillation of many options, down to the exemplar for one condition, which must in turn adapt to the local context.

Why bother?...the impacts of getting these structures 'right' or 'wrong' are massive.

Chip Kaufman, Ecologically Sustainable Design, Melbourne, esdchip@netspace.net.au

Approach of this Session

After an introduction by Doug Farr and Shelley Poticha, Chip Kaufman will posit some assumptions about sustainable urban structuring and compare some prototypes, so that a panel, and then the audience, can comment on them, and/or or add more prototypes.

Comments by Shelley Poticha

Center for Transit-Oriented Development

Former CNU Chief Executive

If New Urbanism = Sustainable Urbanism, we need to get serious about Performance

- Climate – Driving down VMT will make more lasting change than techno fixes
- Credibility – Do we have evidence that NU reduces VMT? Sort of.
- Sustainability – Continued public support depends on delivering on our promises
- Impact – Potential to shift policy + funds toward new urbanism (T4, Climate Bill, National Infrastructure Plan)

Let's Focus on VMT for a Moment

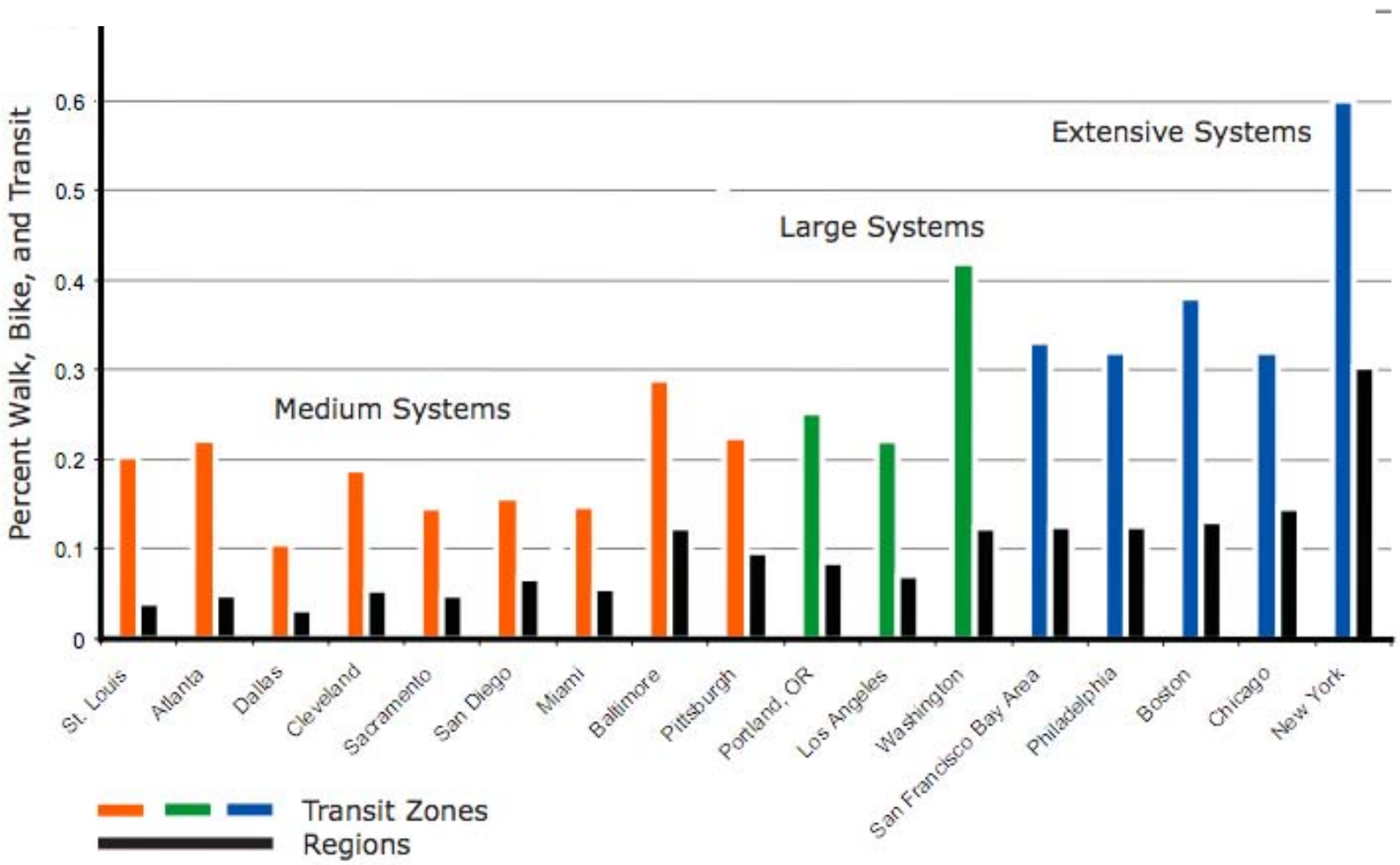
New Research Shows: Linking Location, Pattern + Transit Change Behavior Significantly

- Dittmar et al set the foundation for "location efficiency"
- On average, TOD residents near light or heavy rail make 47% less car trips than ITE standards for apts (3.55 vs. 6.67 trips/day) (TCRP H-27, 2008)
- 30-60% of these same TOD residents took transit to work or school
- Achieving average TOD district densities of at least 30 du/acre 10 miles from the CBD can reduce car trips by 80%. Much less benefit if further away from the center. (TCRP H-27)
- Residential proximity to Employment Centers, Urban Neighborhoods and Transit reduces VMT by at least 65%. More if other measures are in place. (CTOD/CNT)
- Residents of TOD walk, bike and take transit 3 to 5 times as much as those who don't live near frequent transit (CTOD).
- Handy and Newman studies of VMT of low to medium density TND's at the periphery w/no transit = no significant difference in behavior.

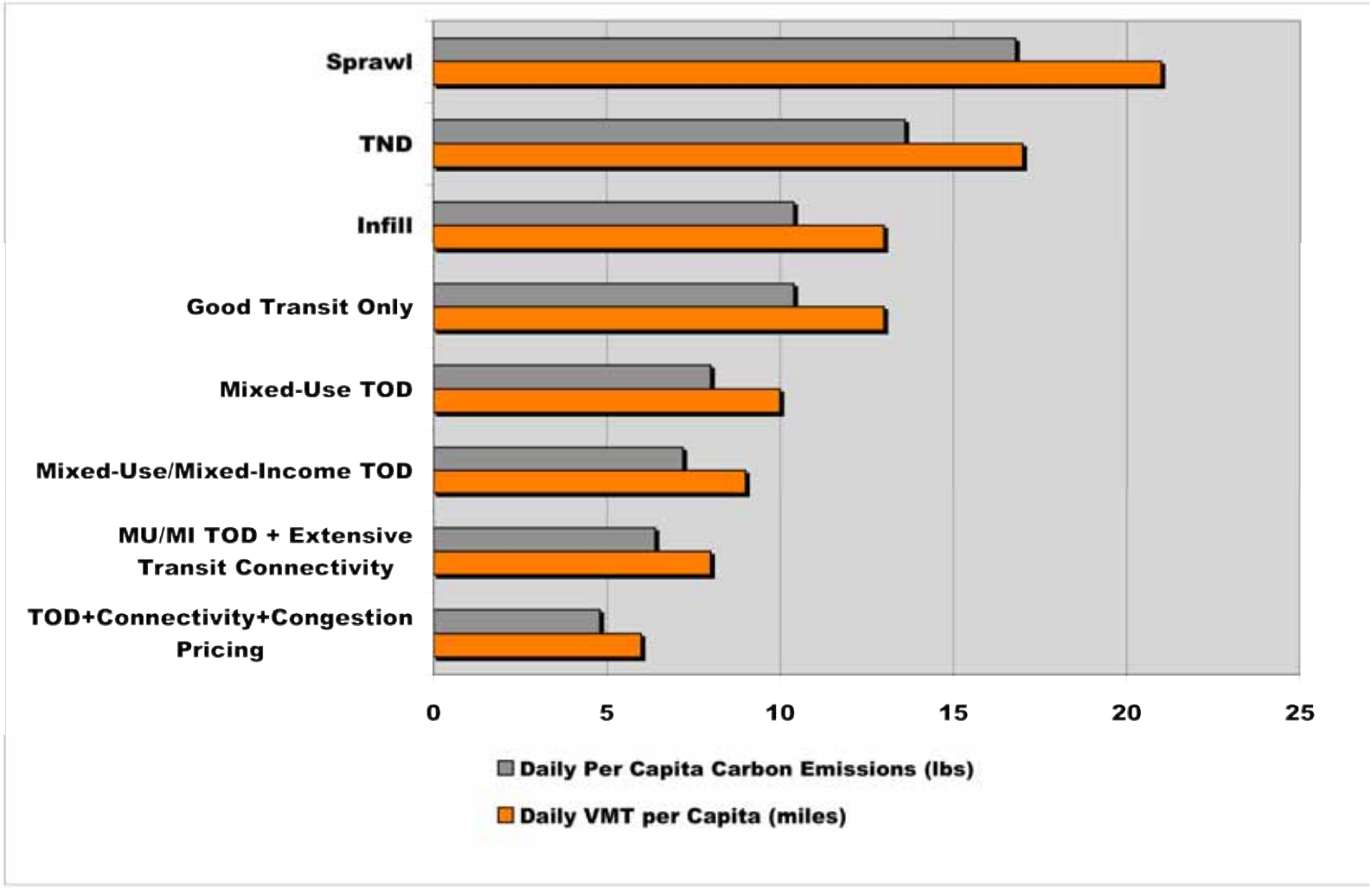
Getting People Out of their Cars – What Matters?

- Density and Mix of uses (P. Newman-10K min/km^2)
- Walkable Urbanism (walkability is the starting point for changing behavior)
- Proximity to Transit and Services (Can I walk there and is it a place I want to go to for other purposes?)
- Frequency and Quality of Transit (no schedule needed, max. 15 min headways, clean and safe)
- Extent of Transit Network (the bigger, the denser, the better)
- Destinations (Links to Job Centers, Universities, Hospitals via transit significantly improve performance)
- Income Diversity (A mix of riders of choice and riders of necessity is critical to transit stability)
- Reduce Parking Availability and Increase Cost (Helps both project bottom line + performance)

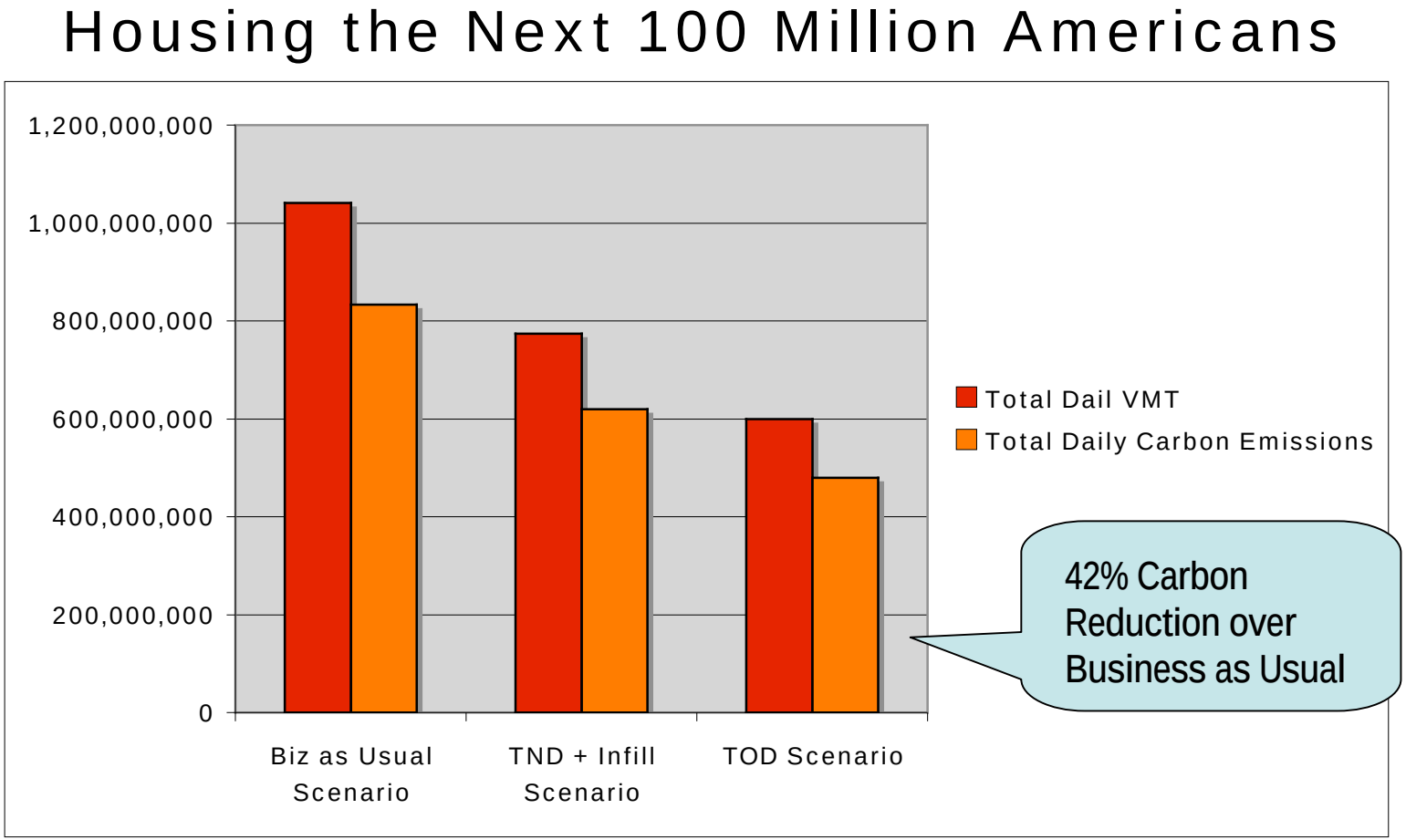
Will People Do it? Yes!



The Carbon Connection: Location, Pattern + Transit Drive Performance



How We Grow Determines If We Can Meet the Carbon Challenge



Taking A Big Leap: Regions Building New Systems w/TOD

- Denver – 5 new LRT, BRT, Commuter Rail lines in 15 years + Streetcars + Rapid bus
- Houston – 6 new light rail lines in 10 years
- Salt Lake – Adding 4 LRT lines w/minimal federal funding
- Portland - Already a large system, now creating a robust local streetcar network
- 80 cities in the Streetcar Coalition
- Atlanta – Belt Line, Peachtree Streetcar, commuter rail + aggressive TOD strategy
- Minneapolis – New Regional and Intercity Rail Strategy + exploring feasibility of rebuilding historic streetcar network
- New York City – Second Ave Subway, new commuter lines + extensive BRT network, Congestion Pricing

What role does urban structure play?

- Neighborhoods must go beyond Perry diagram, raising transit's priority
- We need a broad typology for TOD
- Corridors are a critical, but uninformed scale: Destinations Matter, Value stems from connectivity/access
- Transit Purpose + Technology Can Shape Urban Form (frequency of stops, purpose of corridor, market strength)
- Connectivity and layering of travel options is critical to attacking more than just commuting
- Value is maximized when transit and urbanism coincide (Hovee + CTOD).
- Zupan is "old think" (it's just about NYC in the 70s)

A Proposal for NU’ers

- Stop the unnecessary rhetoric – We should be on the same side of this issue
- Get the facts straight
- Amend the “neighborhood diagram” to address the new importance of reducing VMT
- Clarify design principles/performance expectations at the region and corridor scales
- Get off the Nanny State – Transit is a Development Amenity, just like neighborhood retail
- Get involved in current policy + funding debates. It could matter to your clients.

Chip's Presentation

A Key Regenerative Success Factor for CNU:

Self Criticism

Chip Kaufman, Ecologically Sustainable Design, Melbourne, esdchip@netspace.net.au

Lack of shared understanding about urban structuring within CNU

Doug Farr's excellent book,
Sustainable Urbanism: Urban Design With Nature
represents a *wide* diversity of understandings about urban structuring among New Urbanists. Doug's diagrams from that book are only the segway into this session.

Chip Kaufman, Ecologically Sustainable Design, Melbourne, esdchip@netspace.net.au

Assumptions

We should distinguish between Exemplars and Adaptations*, and not confuse them.

We should recognize the lens through which we see the Urbanism, and keep this in mind.

We should identify the key impediments to achieving urban *exemplars*, and then overcome them if possible.

***eg, Calthorpe's assumption that we should accept "the normal increments of retail" in US.**

Chip Kaufman, Ecologically Sustainable Design, Melbourne, esdchip@netspace.net.au

Assumptions

Retail is the lifeblood of community and urban centers.

Retail, urban centers, public transport and movement networks are inseparable.

Walkable Neighborhood Centers are a fundamental and necessary component of sustainable urbanism (and New Urbanism, at least in its rhetoric).

Public Transport is a sustainable urbanism necessity *now*; be wary of developments that position themselves as 'transit ready'.

'Capillary Public Transport' (feeder buses) should *always* complement 'trunk transport'…this should not be an 'option', if NU is to be credible and attain its goals.

Chip Kaufman, Ecologically Sustainable Design, Melbourne, esdchip@netspace.net.au

Assumptions

The purpose of a City (or any urban center) is to maximize exchange with minimum effort. David Engwicht, then Paul Murrain

Community and Commerce generally have always *co-located* within urban centers at intersecting trade routes, to their mutual benefits.

When establishing public transport and movement networks, these networks should link and thereby 'feed' every urban center (including neighborhood centers), with efficient public transport coverage, which will in turn augment economic feasibility.

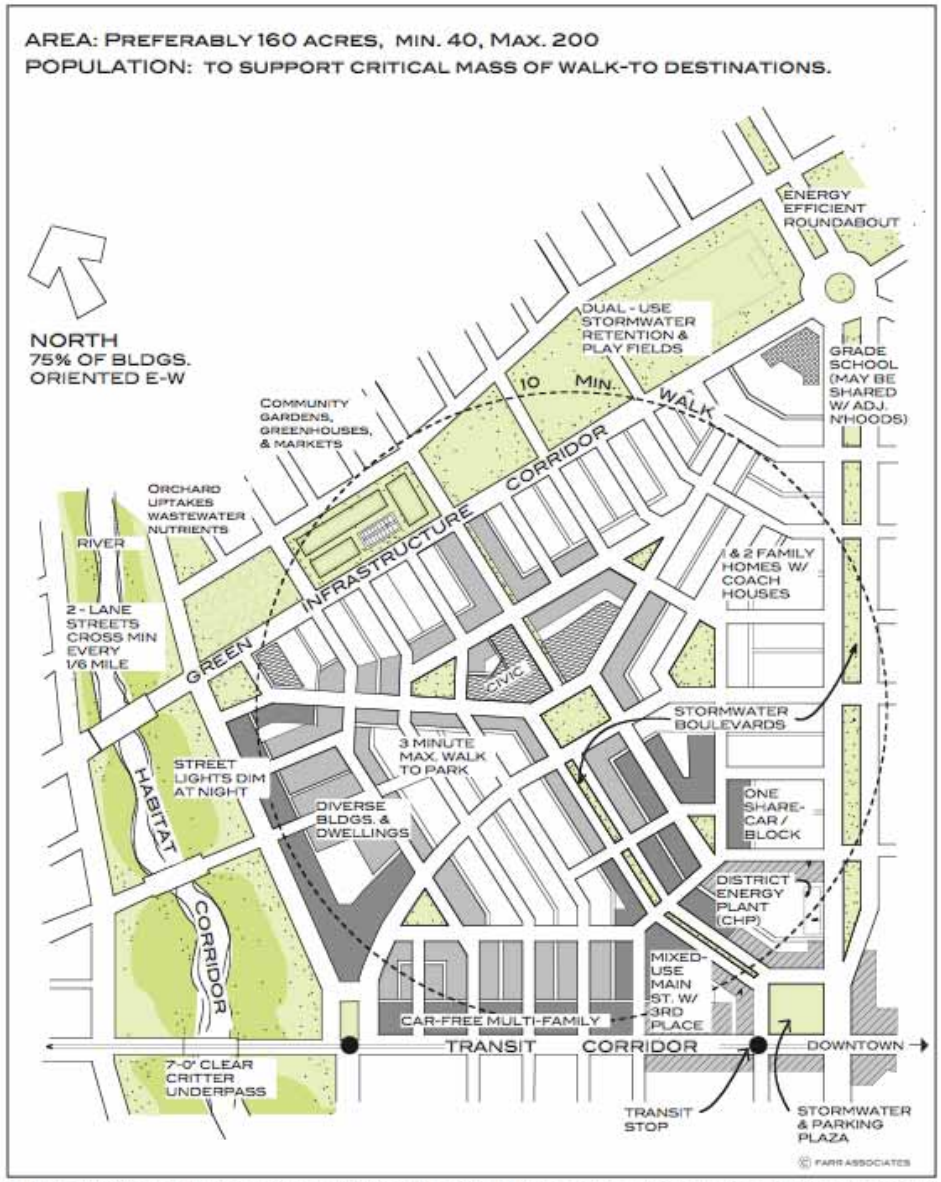
In a sustainable system, urban centers should be more complementary than predatory.

Chip Kaufman, Ecologically Sustainable Design, Melbourne, esdchip@netspace.net.au

Assumptions

Except when they radially converge to a town or city center, public transport routes generally run straight and roughly parallel for maximum coverage and route efficiency between major destinations, generally spacing themselves *no closer than about half a mile* (800m), so that walking distance to transport stops is generally no more than about five minutes. An intersecting grid of such public transport routes (with multi-modal interchanges) often forms across a successful and expansive urban area.

Social & Economic Impacts



A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR)

Diagram courtesy of Doug Farr's *Sustainable Urbanism*

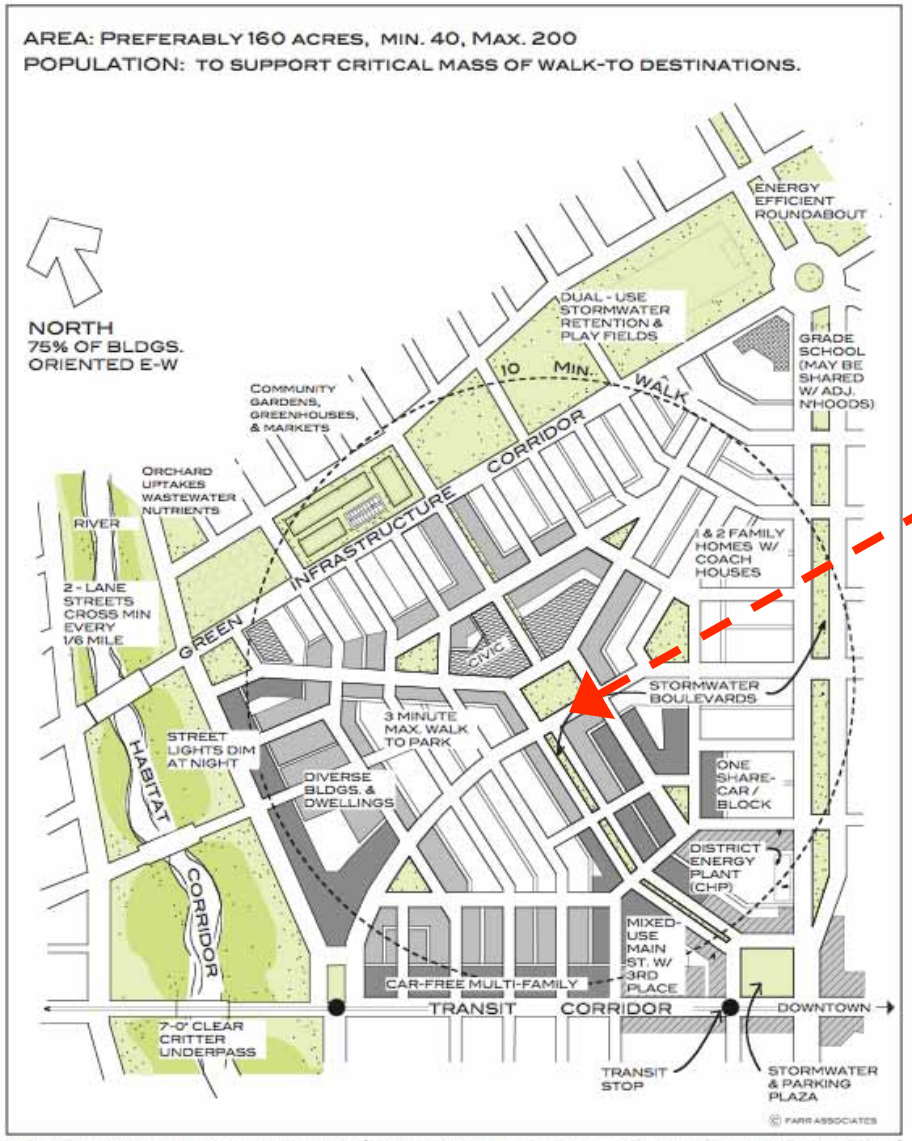
This diagram separates Community within a 'neighborhood center' from Commerce along arterials outside the neighborhoods.

"It is no coincidence that Clarence Perry retreated to the centre, in a relatively isolationist, exclusive and defensive fashion, separating social institutions from the life of commerce which he kept on the edge. Oh, and by the way, he blew away Main Street in one fell swoop." ...Paul Murrain

Women and children should essentially be kept in the neighborhood centers, safely sequestered from commerce out on the main roads.

Is this diagram not a chauvinist anachronism?

Public Transport Routing Problem



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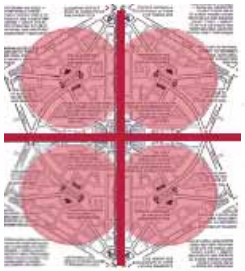
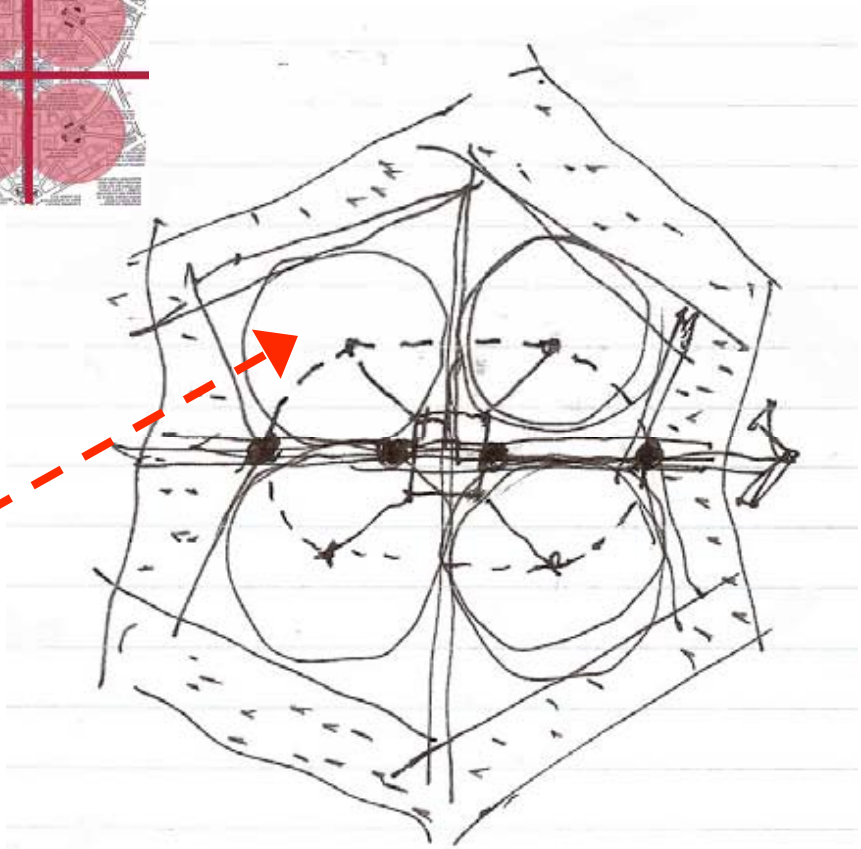
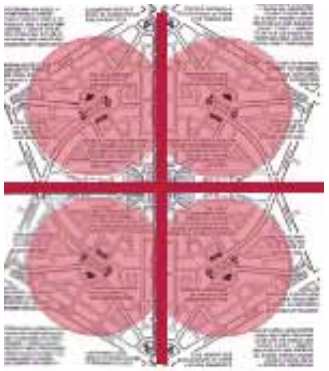


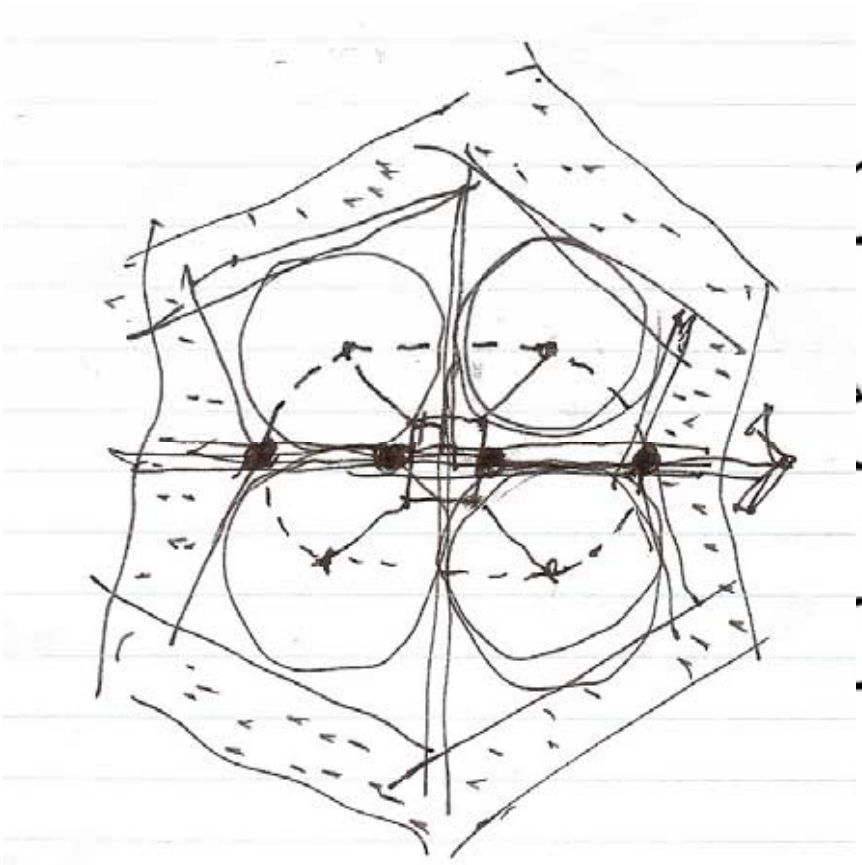


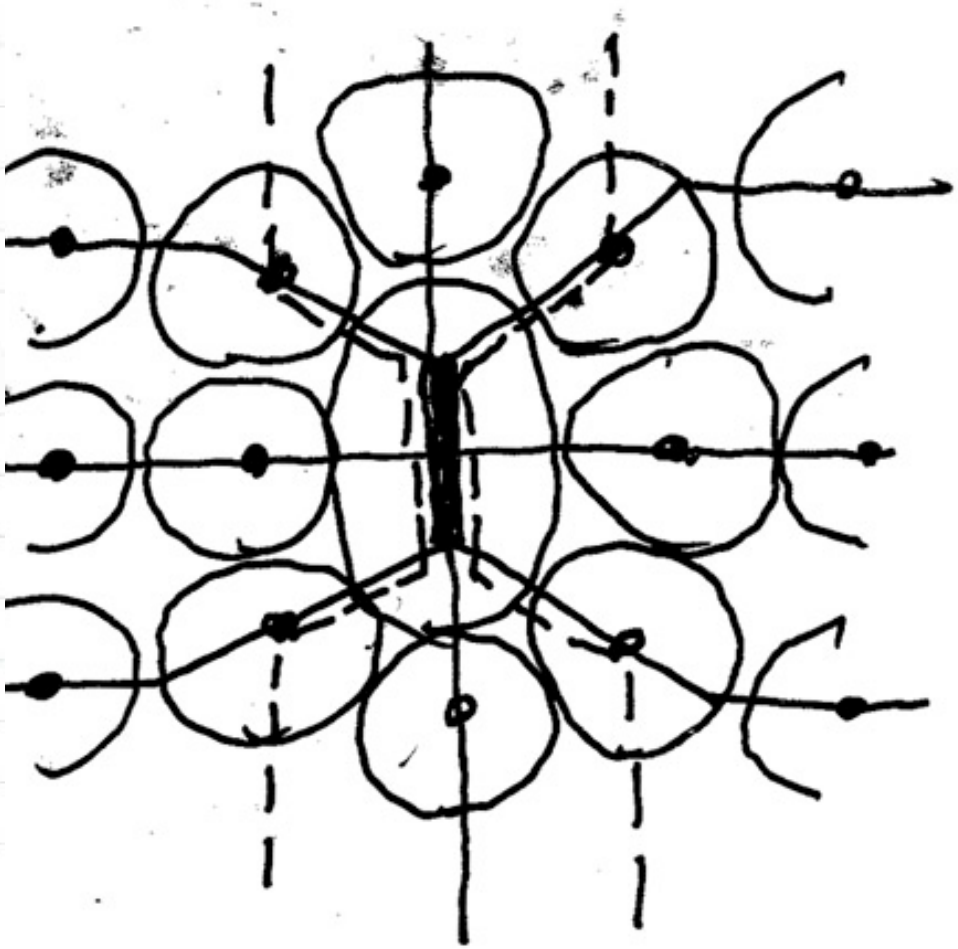
With this diagram, Public Transport must either serve the town center along the main boulevard/s, or else also loop inefficiently through all four NCs, or both, all of which options will compromise transit times and services.

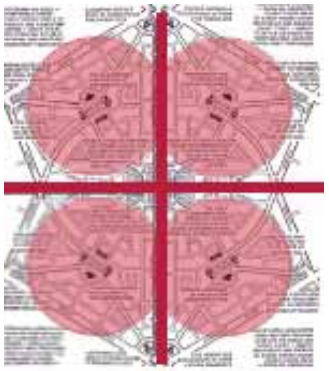


A Prototype for LRT and/or Bus

Transit routes feed each NC, en route through TC, running both north-south and east-west in an expansive region

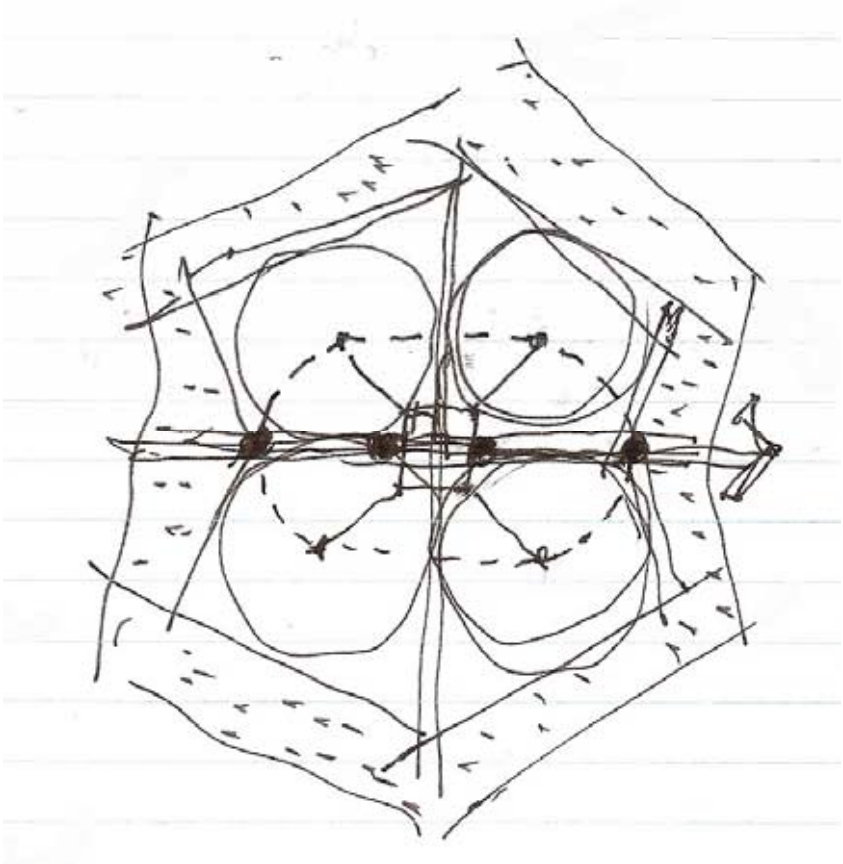


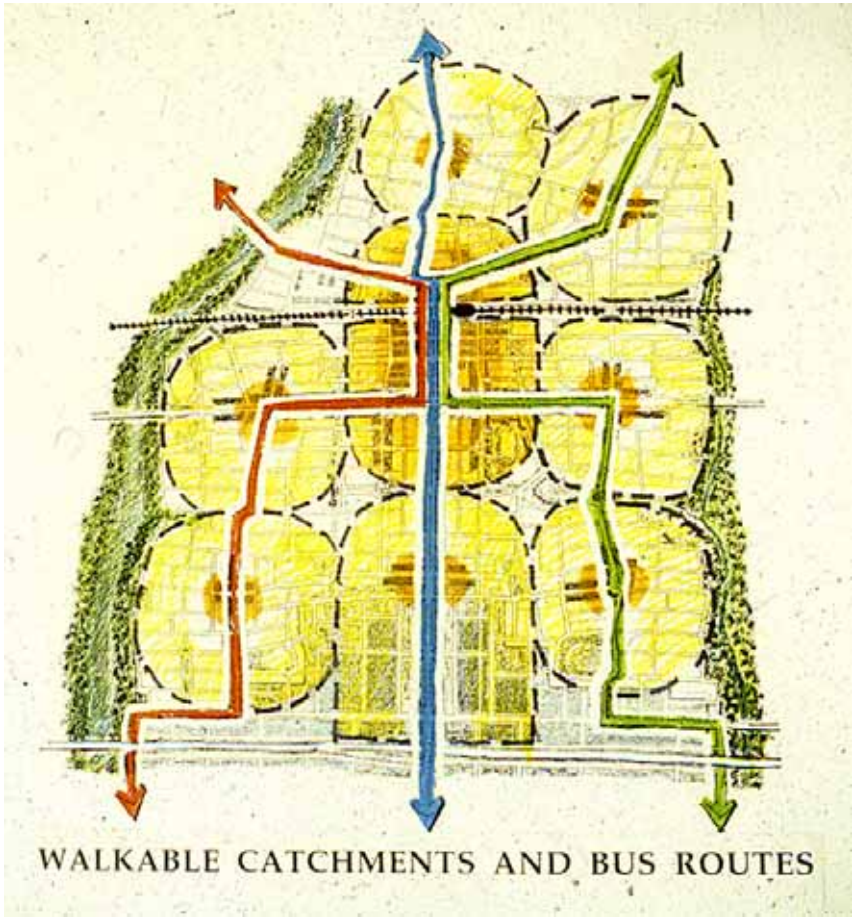




A Prototype for Heavy Rail with Feeder Buses

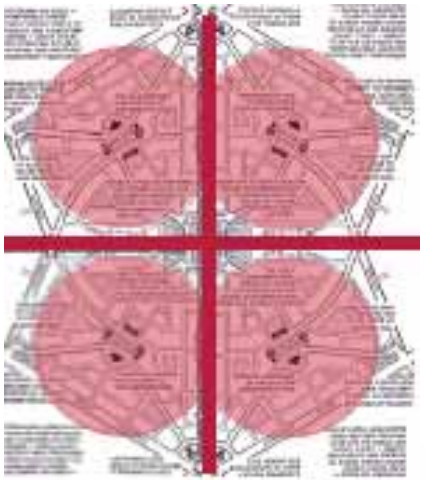
Bus routes feed each NC, en route through TC, either running both north-south and east-west in an expansive region, or as localized 'spider' feeder route, supplementing heavy rail service.

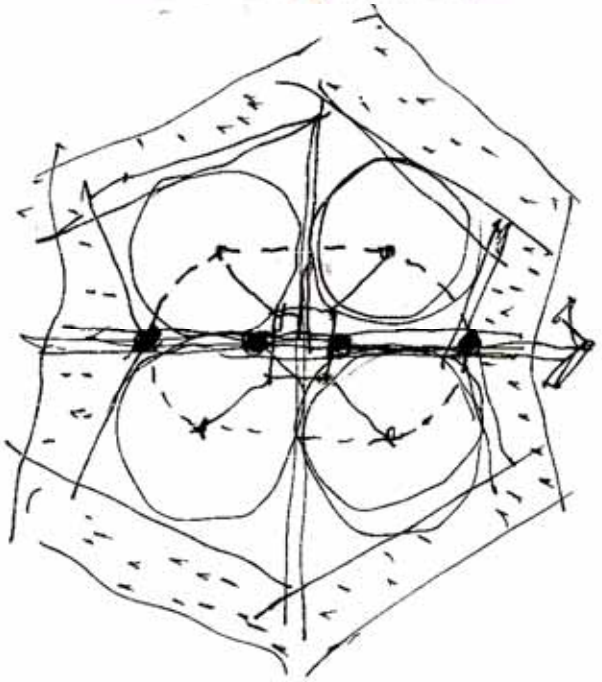




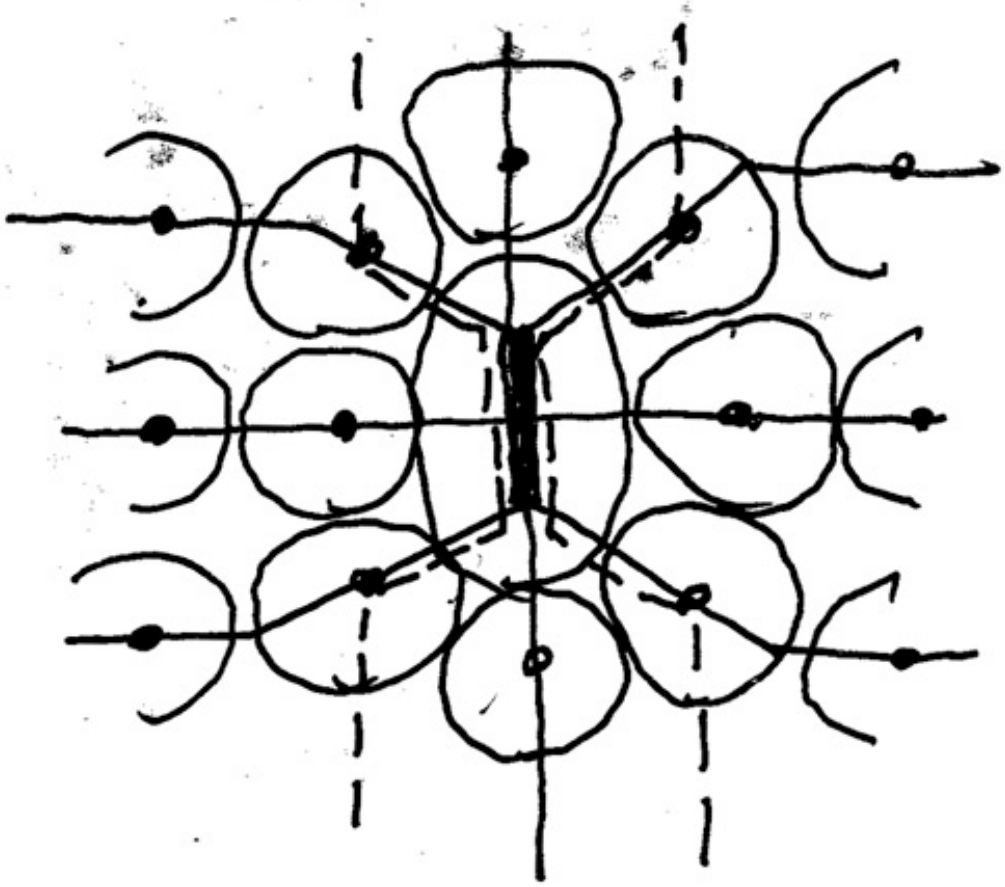
Retail Performance

Twice the capacity to generate sufficient population to enable a relatively self-sufficient mixed-use town center, which can improve on the role of large conventional stand-alone centers





4 neighborhoods

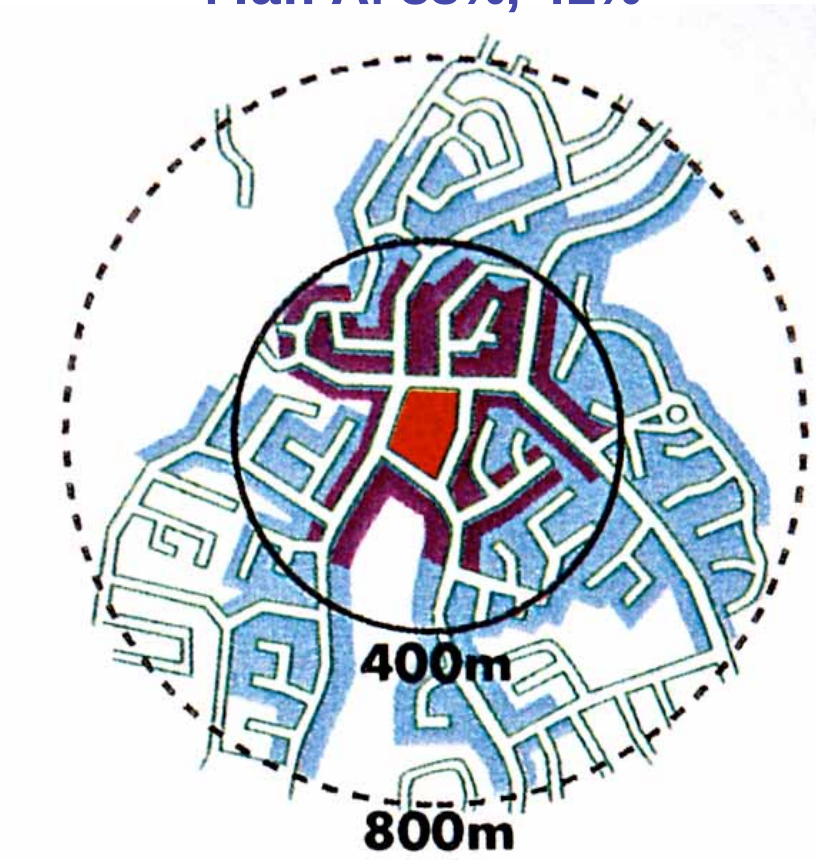


9 neighborhoods (inc TC)

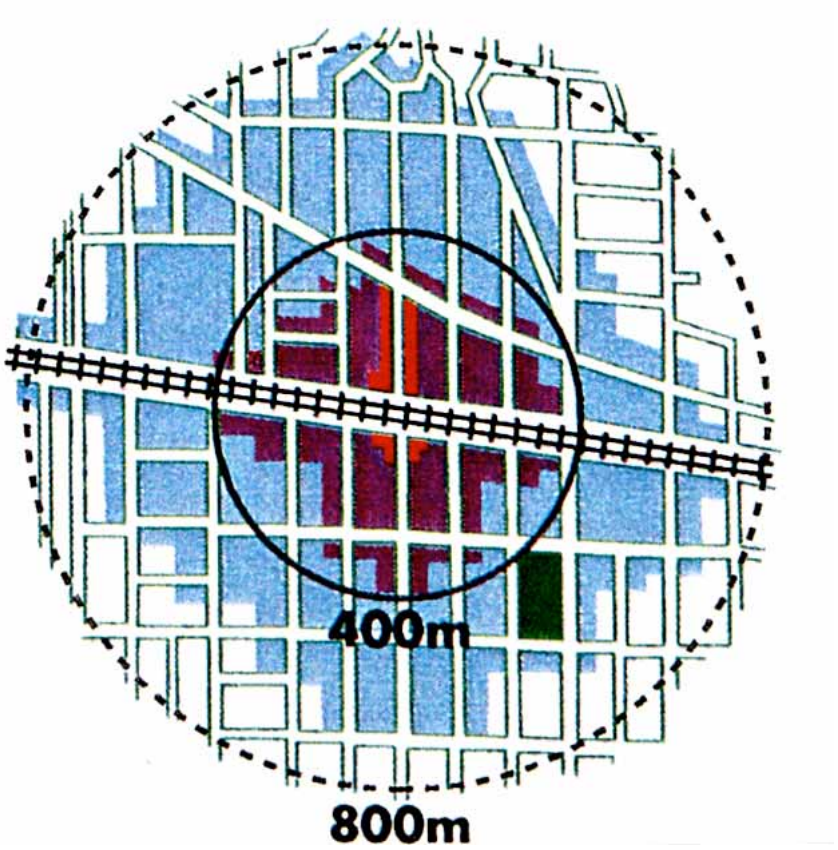
Ped-Shed: an indicator of street network efficiency

(not the circles along, as often mistakenly assumed)

Plan A: 38%, 41%



Plan B: 60%, 58%



The traditional neighbourhood design of Plan B is more effective and efficient in terms of capturing a larger land area, and a greater number of people within a 400m and 800m walking distance of the destination.

The street networks of New Urbanism designs deliver similar benefits over conventional suburban development.

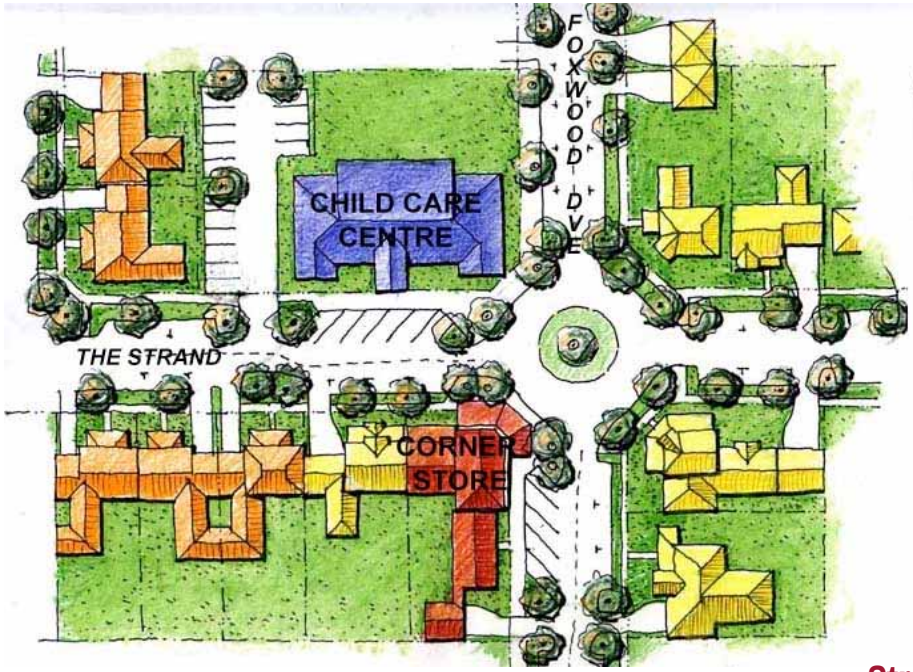
Neighborhood Center
Key Success Factors

Good 'pedshed' to the center

A corner store as the *minimum* facility for a neighborhood centre.

Through streets with at least 5000-6000 total daily trips on them, serving around 1000 dwellings (ie. 17-20 dw/ha over 50-65 ha)

Corner stores typically small (150 -250sqm), and preferably combined with a multi-generational dwelling, and co-locating with childcare and home-offices



Strand Neighborhood Center, Melbourne, now operating

Mueller Plan, Austin, Texas

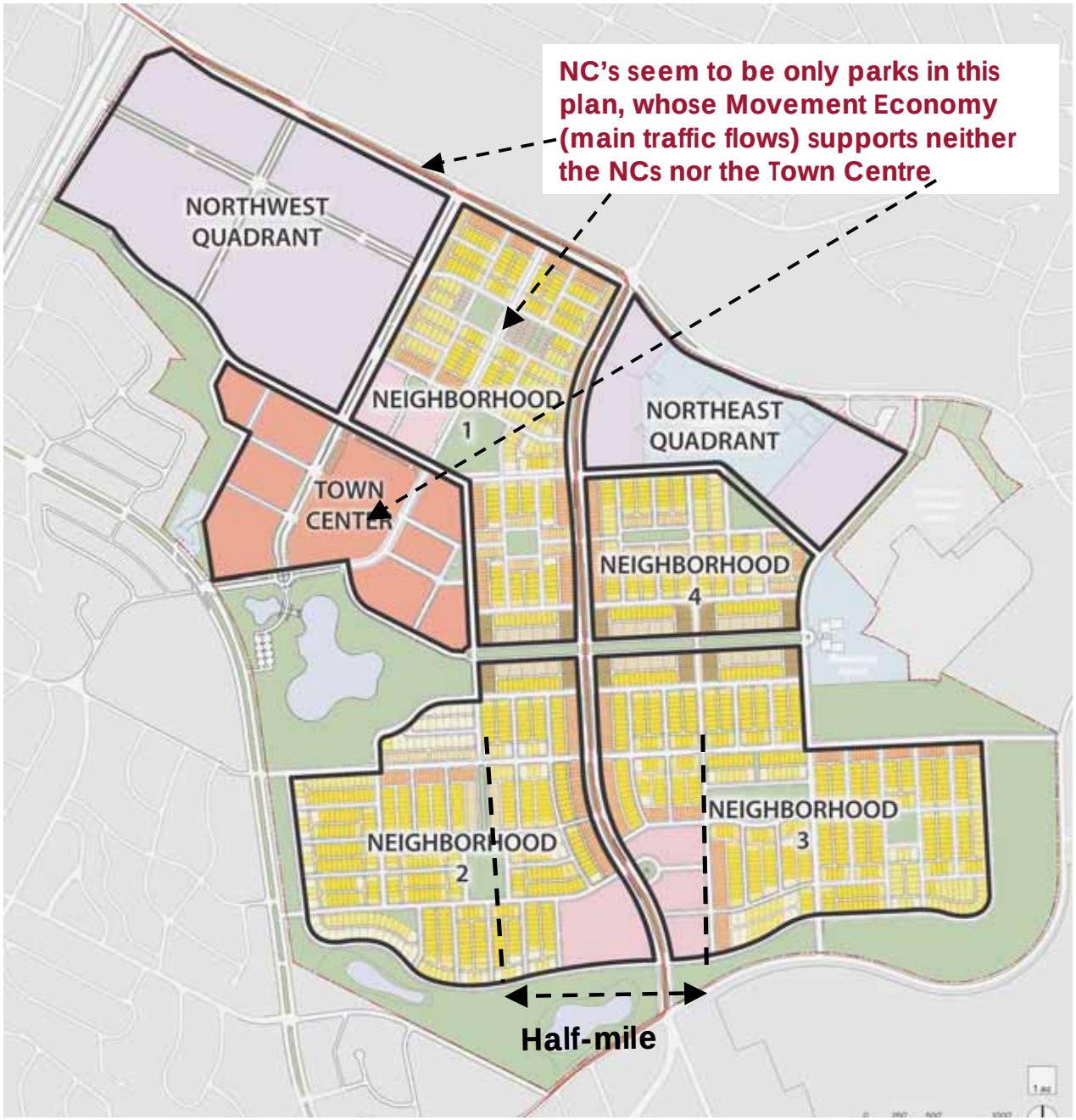
Courtesy of Roma Design

In Chip's opinion, an example of the lack of shared understanding about urban structuring within the CNU.

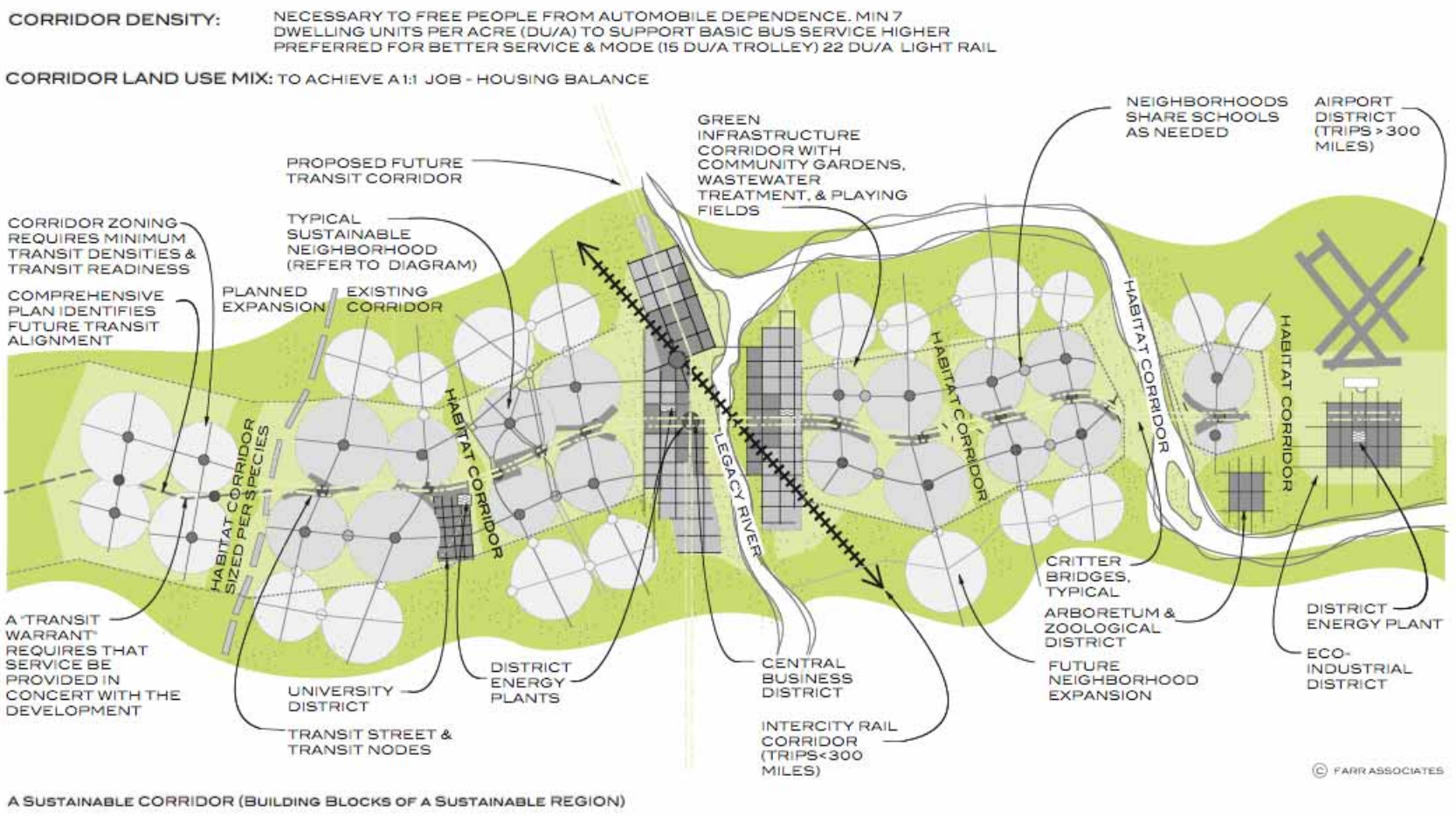
ILLUSTRATIVE RESIDENTIAL BUILDING TYPES

	DWELLING UNITS/LOTS:
TOWN CENTER/MIXED USE SITES	1,025
MULTI-FAMILY/MIXED USE SITES	1,160
6-UNIT MUELLER HOUSE 110' X 110'	144
4-UNIT MUELLER HOUSE 90' X 110'	120
ROW HOUSE 22.5' X 90'	337
ROW HOUSE 22.5' X 70'	240
SHOP HOUSE 25' X 55'	28
YARD HOUSE 55' X 90'	101*
YARD HOUSE 45' X 90'	407*
YARD HOUSE 37' X 90'	993
GARDEN COURT HOUSE	24
PUBLIC OPEN SPACE	
TOTAL	4,579*

** Up to 125 Carriage house units would also be permitted in this illustrative program.*



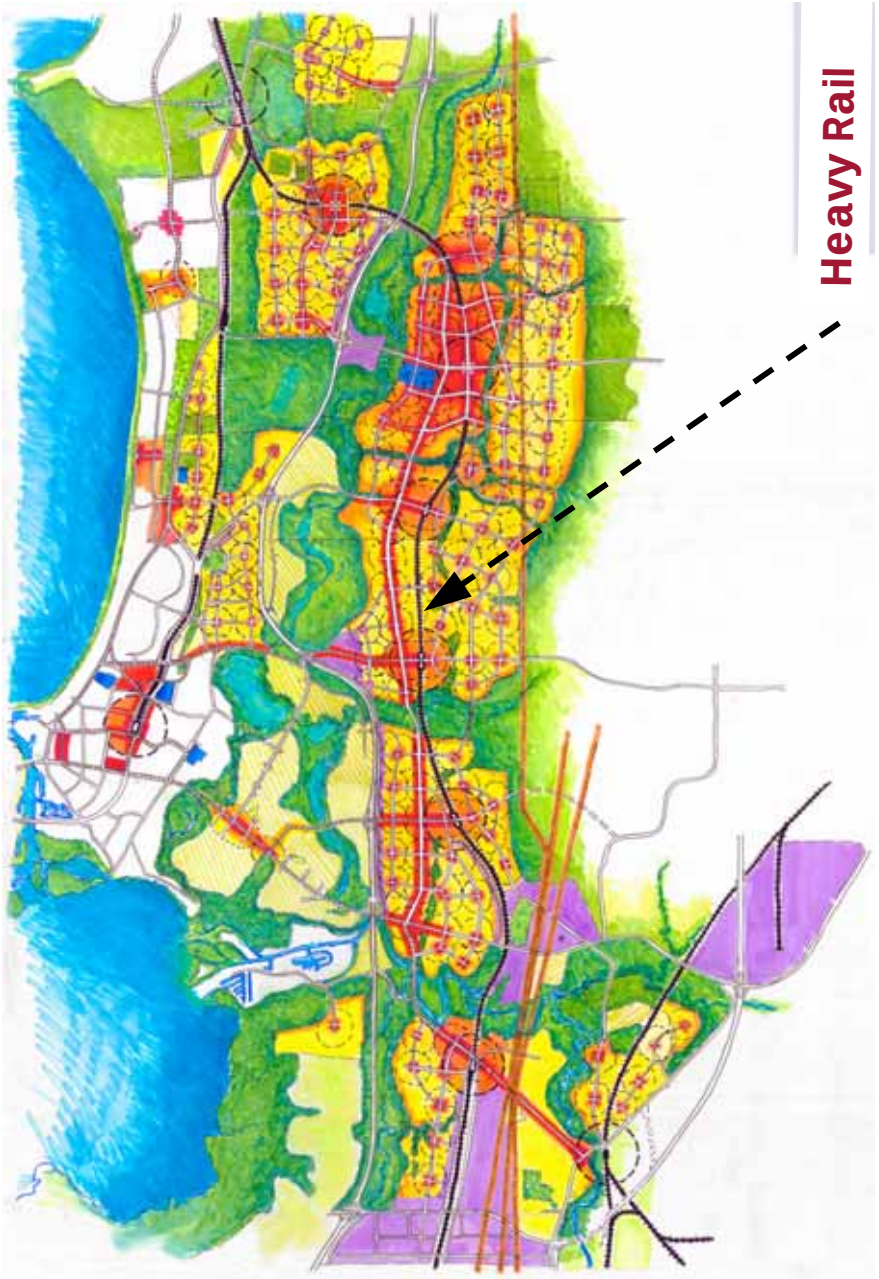
Transit Corridor from *Sustainable Urbanism*, by Doug Farr



Attempts to illustrate transit for all modes.

Transit corridor bypasses neighborhood centers (only appropriate for heavy rail)

39 neighborhoods but only one city/town center, and difficult, with paired neighborhoods, for one to mature into a larger center, supported by smaller ones clustering to it.



Perth's Southwest Growth Corridor, by ESD and Taylor Burrell Barnett, shows how different PT modes should affect urban structure for the same large growth corridor

Note, the Western Australian Planning Commission has not taken a stand on this, and further environmental analysis is required.

Heavy and Light Rail required distinct designs for same site

Light Rail ***attracts*** urban centers to it, while Heavy Rail ***divides*** urban centers, except at stations (spaced miles apart, depending on type of heavy rail).

Light Rail is linear, while Heavy Rail is nodal.

Light Rail shares freeway intersection, while Heavy Rail bypasses it

Heavy Rail runs beneath hills (or bypasses them), while light rail climbs them

Partial plan for Perth's Southwest Growth Corridor by ESD and Taylor Burrell Barnett…note, the WAPC has not taken a stand on this, and further environmental analysis is required.

Movement Network

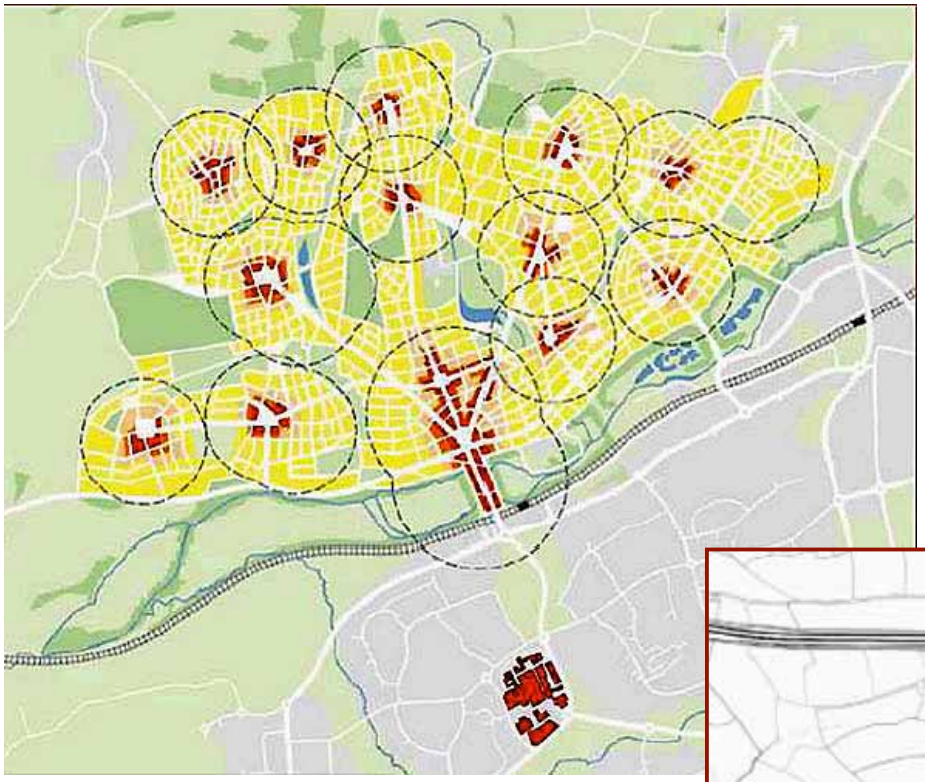
'Capillary Bus Routes' serve every neighborhood center, with both Light and Heavy Rail.

Only 4-laner is the Business Boulevard (both modes), whose Movement Economy anchors the Heavy Rail Station Towns at one end, with the station at the other, all other streets are two-laners. (note, the freeway would relieve some pressure on the arterial network)

Only 4-laner for Light Rail is its Business Spine

Partial plan for Perth's Southwest Growth Corridor by ESD and Taylor Burrell Barnett...note, the WAPC has not taken a stand on this, and further environmental analysis is required.

North Harlow and Sherford, two UK examples of public transport feeding neighbourhood and town centers directly



Plans courtesy of Paul Murrain

Beyond Neighborhoods: Centers, Corridors, and Districts

All blue slides from a Calthorpe presentation, 2004 CNU, with some italicized notes by Chip Kaufman

Implications for Dual Couplets…unnecessary if the urban structure works well?

Dual Couplets Driven by:

Limited permeability in neighborhood fabric of <2000vpd

Resultant oversized boulevards, spaced at 1mile intervals (instead of at a half-mile interval, which enables a finer-grained movement network, and supports smaller scale urban centres, more locally available)

The Urban Network/

Regional Transportation Structure

Does this network not isolate NCs from the Movement Economy?

Thruways

Transit Boulevards

Local Arterials

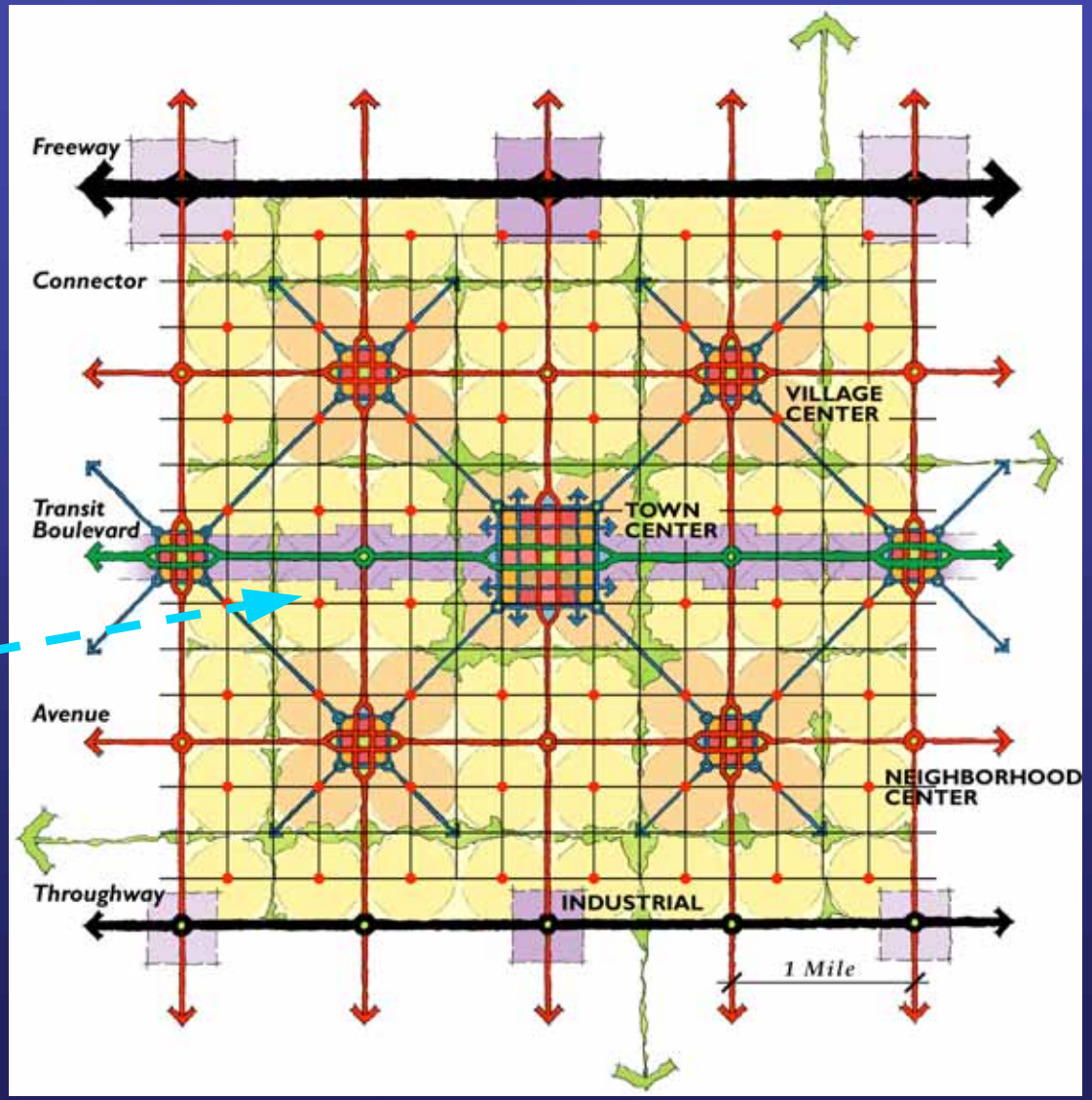
Connector Streets

Local Streets

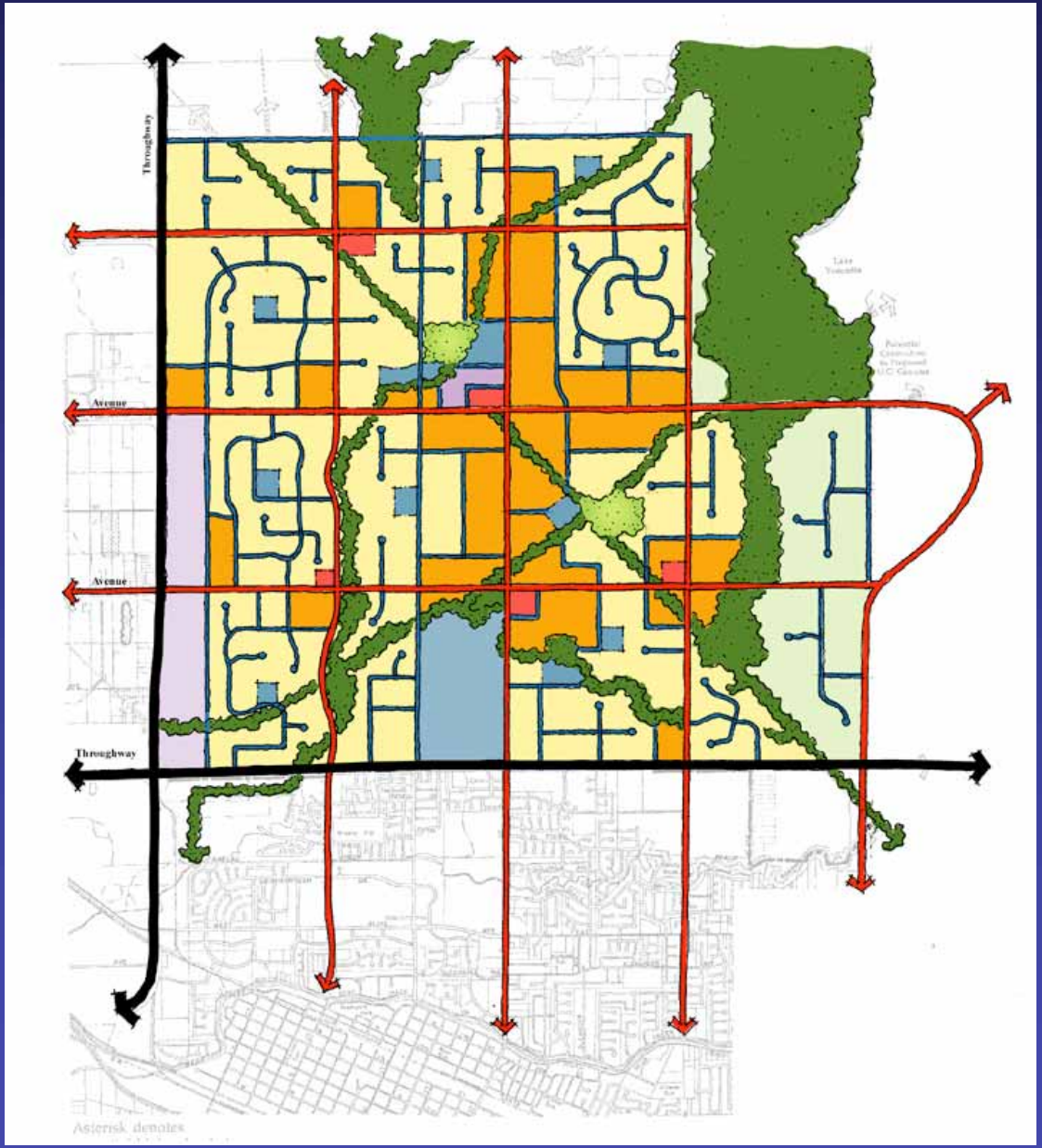
What is impact on their retail of putting NCs a quarter-mile from the main Movement Economy, and not on it?

One mile

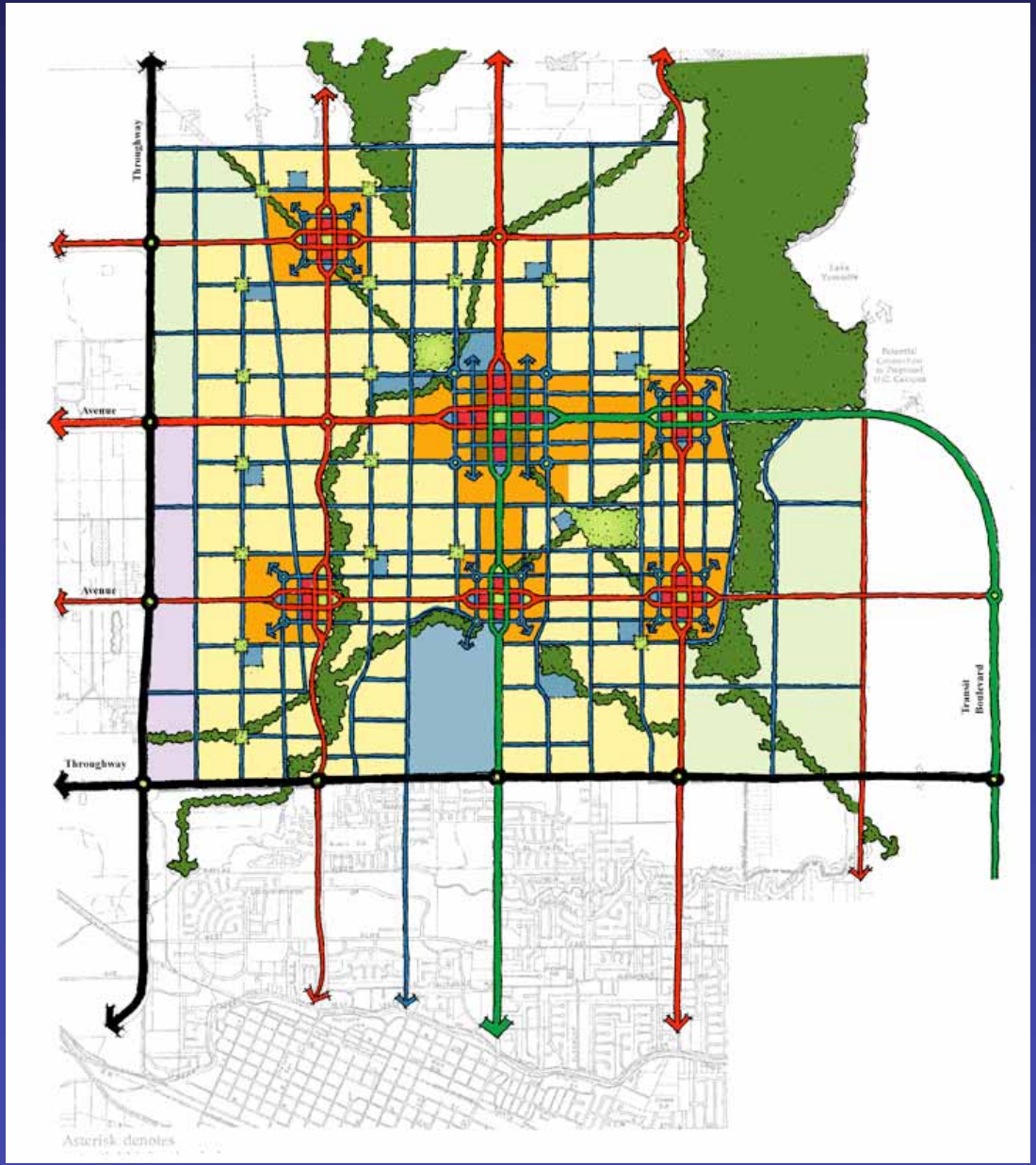
Isn't the mile spacing causing the arterial and retail giganticism?



Sprawl Alternate



Alternate Network



Roadway Volumes
(ADT in thousands)

Type of Road	Suburban	Alternate
Arterials/Avenues	20 - 50,000	10 - 27,000
Lane Requirements	25% - 6L	80% - 4L
	75% - 4L	20% - 2L
Collectors/Connectors	4 - 5,000	1- 4,000
% Over 2,000	67%	5%

Does this not confirm a possibly unnecessary amount of larger arterials?

Are Australia and the US different in this regard?

Some might say that the Jeffersonian Grid in America precludes this structure of smaller arterials spaced at 800m (half mile), and forces bigger arterials on America…is this not actually a generally unrecognized US-wide problem that should be fixed? The diagram below shows how a possibly better-structured urbanism fits within the Jeffersonian half-mile grid.

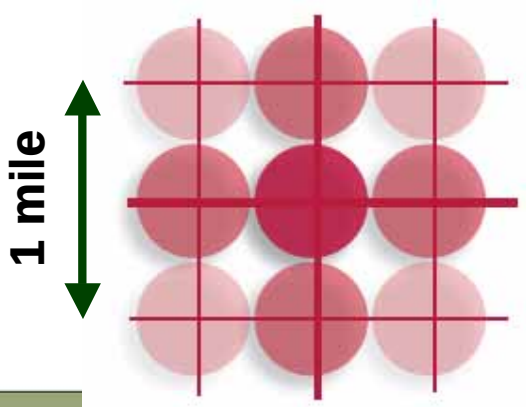
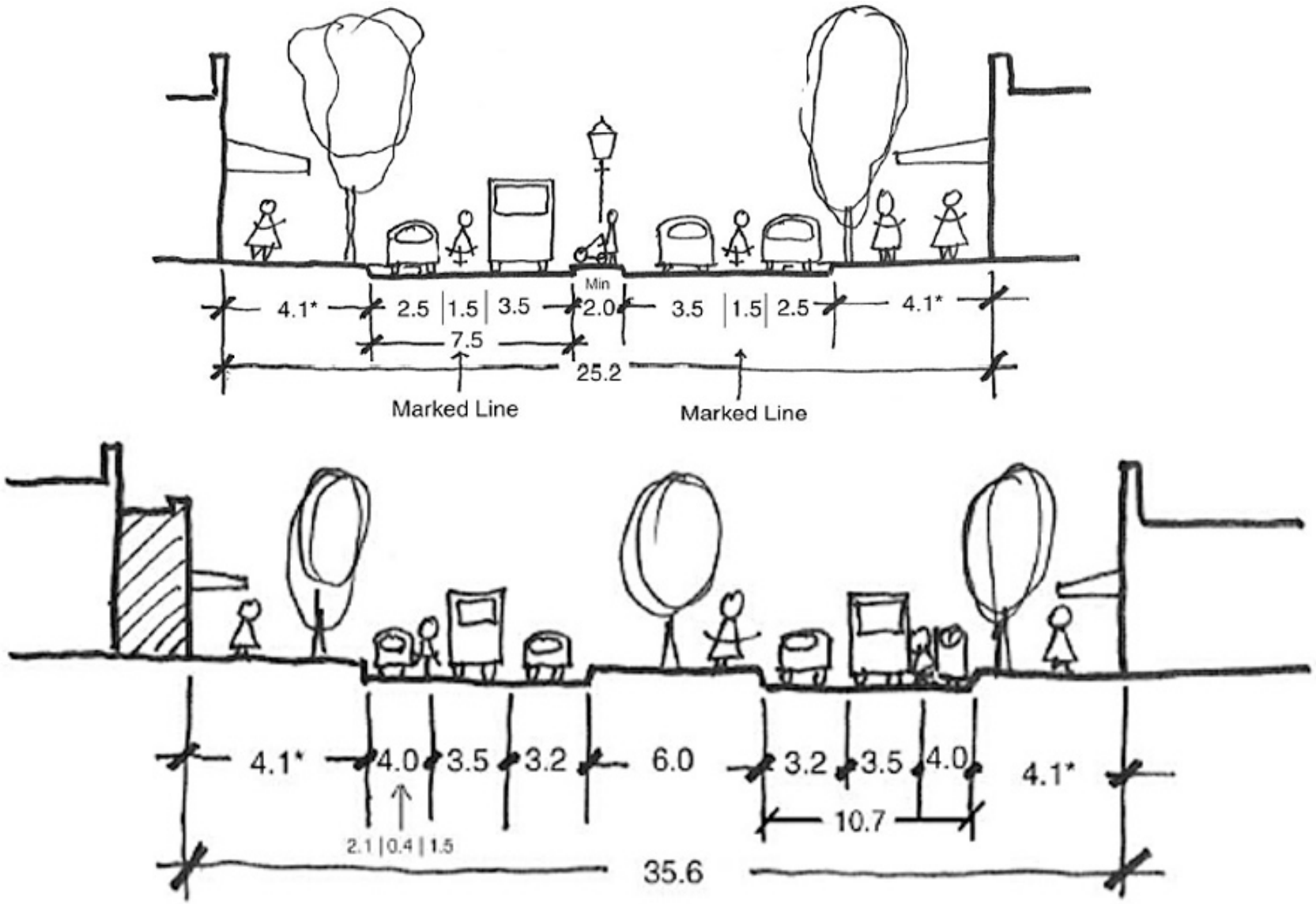


Diagram courtesy of Peter Richards
peter@drarchitects.com.au

On-street parking for town and city centres...
Western Australia's *Liveable Neighbourhoods Code*



Calthorpe's St. Andrews Master Plan, Perth, Australia

Peter has said that retail is generally hard in NCs…why??

St. Andrews Master Plan, Perth, Australia

CENTERS, CORRIDORS, AND DISTRICTS

Peter has said that retail is generally hard in NCs…why??

St. Andrews Master Plan, Perth, Australia

OPEN SPACE AND NEIGHBORHOODS

St. Andrews Master Plan, Perth, Australia Circulation

Peter has said that retail is generally hard in NCs…why??

Why are the arterials so big, thereby 'requiring' so many dual couplets?

Let the discourse begin!

End of the formal session, the remaining slides were held in reserve, but may be of some reference use.